REMARKS

Claims 1-20 and 23-26 are pending in the present application. Claims 21 and 22 were previously canceled. Claims 23-26 have been added, and claims 1, 13, 14, 16, and 18-20, have been amended. No new matter has been added. Applicants respectfully request reconsideration of the claims in view of the following remarks.

Claims 1-20 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have amended independent claims 1, 13, 14 and 16 to remove the language cited by the Examiner. Accordingly, Applicants request that the Examiner withdraw the objection under § 112.

Claims 1-20 have been rejected under 35 U.S.C. § 103(a) as assertedly being unpatentable over U.S. Publication No. 2005/0127524 to Sakamoto, et al. (hereinafter "Sakamoto") in view of U.S. Patent No. 6,348,365 to Moore, et al. (hereinafter "Moore") and U.S. Patent No. 5,761,115 to Kozicki, et al. (hereinafter "Kozicki"). Applicant respectfully traverses this rejection.

The present Office Action cites three documents and refers to the Examiner previous arguments that the present switching device and the configurable interconnect, the electrical conductor network and the integrated circuit constructed by means of the switching device are obvious from a combination of these three documents. (Office Action at 2). Applicants respectfully disagree.

Independent claims 1, 13, 14 and 16 have been amended to further clarify features such as generation of the metal ions and the metal precipitates within the solid electrolyte in the operation of the redox reaction. In particular, claim 1, as amended, requires

the redox-reaction resulting in an oxidization of the electrode metal and thereby the generation of metal ions which are released into the solid state electrolyte and therein reduced to form metallic precipitates which upon continued supply of metal ions increase a metal concentration within the solid state electrolyte and finally form an irreversible conductive metallic connection bridging the electrodes and enabling a flow of electrons between the electrodes to define the on-state.

More specifically, claim 1 requires that "an irreversible conductive metallic connection bridging the electrodes and enabling a flow of electrons between the electrodes to define the on-state." The references of record do not teach or suggest such a device.

Sakamoto describes a switching device comprising a solid electrolyte. The switching device maintains its on- or off-state upon switching off the supply voltage, which can be reprogrammed (refer to the graphical representations of the function of the switching device depicted in Figs. 5 and 6).

Further, Kozicki discloses a programmable metallization cell structure ("PMC") using a chalcogenide glass in combination with a group IB or IIB-metal and an anode comprising for example silver and a cathode comprising for example aluminum or another conductor material. The programmable metallization cell structure of Kozicki has the function that when a voltage is applied to the anode and the cathode a non-volatile metal dendrite grows from the cathode along the surface of the fast ion conductor (the chalcongenide glass) towards the anode. The on- and off-state of this known PMC cell can be reversed or reprogrammed.

Moore starts from the PMC cell disclosed by Kozicki and discloses a method for manufacturing the same. In this method of manufacturing a PMC cell, tungsten is used for forming a lower conductive electrode material of the PMC cell. The chalcogenide material can be a Ge_3Fe_7 chalcogenide glass and the conductive top electrode metal may be silver. Moore

proposes to use ultra violet light or ultra violet light in combination with a heat treatment to cause a diffusion of metal ions from the metal material into the glass material. The concentration of metal ions from in the chalcogenide glass shall be approximately 27% +/- 10% to ensure the formation of the conductive metal dendrites when the PMC cell is later programmed (refer to Figs. 1 to 6 and the relating description thereof in column 2, line 37 to column 3, line 29 of Moore et al.).

As shown above, none of the three cited documents disclose a switching device that can be irreversibly switched from the off-state into the on-state nor a redox-system comprising the electrodes and the solid state electrode nor a reduction of the metal ions within the solid state electrolyte. Since none of the references teach the limitations, the combination of references cannot teach the invention. It is, therefore, respectfully submitted that claim 1 is allowable.

The proposed combination of Sakamoto, Moore and Kozicki does not teach or suggest these features. Accordingly, the pending independent claims are allowable over the proposed combination under 35 U.S.C. § 103(a) and should be passed to issue.

Independent claims 13, 14 and 16 each include similar limitations. It is therefore respectfully submitted that each of these claims are allowable over the references of record.

Claims 2-12, 15 and 23-26 depend from claims 1, 13, 14, or 16, and add further limitations. It is respectfully submitted that these dependent claims are allowable by reason of depending from an allowable claim as well as for adding new limitations.

In view of the above, Applicants respectfully submit that the application is in condition for allowance and request that the Examiner pass the case to issuance. If the Examiner should have any questions, Applicants request that the Examiner please contact Applicants' attorney at the address below. In the event that the enclosed fees are insufficient, please charge any additional fees required to keep this application pending, or credit any overpayment, to Deposit Account No. 50-1065.

Respectfully submitted,

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Date

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